

**Remarks**

Applicants are in receipt of the Office Action mailed February 28, 2005 in which the Examiner (1) modified his restriction requirement; (2) objected to the Abstract as containing the words "is disclosed;" (3) rejected claims 1, 8, and 9 as anticipated under § 102(b) by U.S. Patent No. 3,567,808; and (4) indicated that claims 2-7 and 10-55 would be allowable if they did not depend from rejected claims.

Applicants appreciate the Examiner's indication that claims 2-7 and 10-55 would be allowable if rewritten. Applicants respond to the rejections and objections as follows.

**Objection to the Abstract**

Applicants have amended the abstract to remove the words "is disclosed." Applicants believe the amendments set forth above address the Examiner's objection and respectfully request withdrawal of same.

**Rejections of Claims 1, 8, and 9 under 35 U.S.C. § 102**

The Examiner asserts that claims 1, 8, and 9 are anticipated under 35 U.S.C. § 102(b) by U.S. Patent No. 3,567,808 to *Smith*. Particularly, the Examiner states that "Smith . . . teaches a process of homogenizing a sample (of material) including the steps of measuring (or using) a portion of a sample of material (e.g., carbonized ammonium lignin sulfonate, carbonized coconut shells), measuring (or using) a portion of a volume of a binding solution (e.g., pitch), combining the sample and the volume to form a mixture and grinding the mixture."

Applicants believe the claims, as amended above, overcome the Examiner's rejection and are now in condition for allowance. Particularly, Applicants have amended claim 1 to recite in the preamble "a method for analyzing a raw sample" rather than "a method for homogenizing a raw sample." Additionally, Applicants have added the elements "pelletizing the mixture" and

"intensively analyzing the sample." Neither of these new elements are disclosed in the *Smith* reference. Thus, *Smith* does not anticipate any of claims 1, 8, or 9.

The *Smith* reference is directed to "[t]he production of low density, high strength carbon articles using ammonium lignin sulfonate, coconut shell particles, and pitch binders as basic starting materials." (col. 1, ll. 14-16). That is, it is directed to making a carbon article and particularly, an article which is useful as insulation material. Current claims 1, 8, and 9 are directed to methods of analyzing a raw sample. Thus, because the *Smith* reference is directed to a completely different process than the one claimed in claims 1, 8, and 9, one of ordinary skill in the art would not have been motivated to modify the *Smith* reference (for making carbon based insulation) to create the method of analyzing a sample of claim 1, 8, and 9. Therefore, none of claims 1, 8, or 9 are obvious in light of *Smith*.

Additionally, with respect to claims 8 and 9, claim 8 recites "sample particles having a mean diameter of less than 6 microns" and claim 9 recites "sample particles having a particle diameter standard deviation of less than 0.01 millimeters throughout the mixture." With respect to particle size, the *Smith* reference teaches sample particles larger than 200 mesh (col. 3, l. 6; col. 4, l. 21). Particles larger than 200 mesh are no smaller than 74 microns. See PERRY'S CHEMICAL ENGINEERS' HANDBOOK at 19-20 (Exhibit A). Thus, because none of the particles have a diameter less than 74 microns, the "mean diameter" can not be "less than 6 microns" as recited in claim 8, and claim 8 is neither anticipated nor obvious in light of the *Smith* reference.

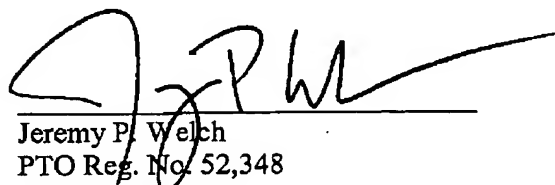
Likewise, the *Smith* reference does not mention the standard deviation of the particle size. Thus, claim 9 is not anticipated by the *Smith* reference. Additionally, there is nothing in *Smith* to motivate one of ordinary skill in the art to modify the process of *Smith* to use any particular

particle size standard deviation. For at least this reason, claim 9 is also not obvious in light of *Smith*.

### Conclusion

Applicants believe that all claims are free of the prior art and are in condition for allowance. Entry of the amendments and allowance of all pending claims is respectfully requested. In the event that an extension of time is necessary in order for this submission to be considered timely filed, please consider this a Request for Extension of Time, and the Commissioner is authorized to charge the fee to Deposit Account 03-2769 of Conley Rose, P.C., Houston, Texas. If the Examiner believes that a telephonic interview would be beneficial, he is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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ATTORNEY FOR APPLICANTS

# Exhibit A

# **PERRY'S CHEMICAL ENGINEERS' HANDBOOK**

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## 19-20 SOLID-SOLID OPERATIONS AND EQUIPMENT

TABLE 19-6 U.S. Sieve Series and Tyler Equivalents  
(ASTM—E-11-61)

Sieve designation		Sieve opening		Nominal wire diam.		Tyler equivalent designation
Standard	Alternate	mm	in (approx. equivalents)	mm	in (approx. equivalents)	
107.8 mm	4.24 in	107.6	4.24	6.40	0.2520	
101.6 mm	4 in	101.6	4.00	6.30	.2480	
90.5 mm	3 1/2 in	90.5	3.50	6.08	.2394	
76.1 mm	3 in	76.1	3.00	5.80	.2283	
64.0 mm	2 1/2 in	64.0	2.50	5.50	.2165	
53.8 mm	2.12 in	53.8	2.12	5.15	.2028	
50.8 mm	2 in	50.8	2.00	5.05	.1988	
45.3 mm	1 3/4 in	45.3	1.75	4.85	.1909	
38.1 mm	1 1/2 in	38.1	1.50	4.59	.1807	
32.0 mm	1 1/4 in	32.0	1.25	4.23	.1665	
26.9 mm	1.08 in	26.9	1.06	3.90	.1535	1.050 in
25.4 mm	1 in	25.4	1.00	3.80	.1496	
22.6 mm*	3/4 in	22.6	0.875	3.50	.1378	0.883 in
19.0 mm	3/4 in	19.0	.750	3.30	.1299	.742 in
16.0 mm*	5/8 in	16.0	.625	3.00	.1181	.624 in
13.5 mm	0.530 in	13.5	.530	2.75	.1083	.525 in
12.7 mm	1/2 in	12.7	.500	2.67	.1051	
11.2 mm*	7/16 in	11.2	.438	2.45	.0965	.441 in
9.51 mm*	3/8 in	9.51	.375	2.27	.0894	.371 in
8.00 mm*	5/16 in	8.00	.312	2.07	.0815	2 1/4 mesh
6.73 mm	0.265 in	6.73	.265	1.87	.0736	3 mesh
6.35 mm*	1/4 in	6.35	.250	1.82	.0717	
5.66 mm*	No. 3 1/4	5.66	.223	1.66	.0661	3 1/4 mesh
4.75 mm	No. 4	4.75	.187	1.54	.0606	4 mesh
4.00 mm*	No. 5	4.00	.157	1.37	.0539	5 mesh
3.38 mm	No. 6	3.36	.132	1.23	.0484	6 mesh
2.83 mm*	No. 7	2.83	.111	1.10	.0430	7 mesh
2.39 mm	No. 8	2.38	.0937	1.00	.0394	8 mesh
2.00 mm*	No. 10	2.00	.0787	0.900	.0354	9 mesh
1.68 mm	No. 12	1.68	.0661	.810	.0319	10 mesh
1.41 mm*	No. 14	1.41	.0555	.725	.0285	12 mesh
1.19 mm*	No. 16	1.19	.0469	.650	.0256	14 mesh
1.00 mm*	No. 18	1.00	.0394	.580	.0228	16 mesh
841 micron	No. 20	0.841	.0331	.510	.0201	20 mesh
707 micron*	No. 25	.707	.0278	.450	.0177	24 mesh
595 micron	No. 30	.595	.0234	.390	.0154	28 mesh
500 micron*	No. 35	.500	.0197	.340	.0134	32 mesh
420 micron	No. 40	.420	.0165	.290	.0114	35 mesh
354 micron*	No. 45	.354	.0139	.247	.0097	42 mesh
297 micron	No. 50	.297	.0117	.215	.0085	48 mesh
250 micron*	No. 60	.250	.0098	.180	.0071	60 mesh
210 micron	No. 70	.210	.0083	.152	.0060	65 mesh
177 micron*	No. 80	.177	.0070	.131	.0052	80 mesh
149 micron	No. 100	.149	.0059	.110	.0043	100 mesh
125 micron*	No. 120	.125	.0049	.091	.0036	115 mesh
105 micron	No. 140	.105	.0041	.076	.0030	130 mesh
88 micron*	No. 170	.088	.0035	.064	.0025	170 mesh
74 micron	No. 200	.074	.0029	.053	.0021	200 mesh
63 micron*	No. 230	.063	.0025	.044	.0017	250 mesh
53 micron	No. 270	.053	.0021	.037	.0015	270 mesh
44 micron*	No. 325	.044	.0017	.030	.0012	325 mesh
37 micron	No. 400	.037	.0015	.025	.0010	400 mesh

\*These sieves correspond to those proposed as an international (I.S.O.) standard. It is recommended that wherever possible these sieves be included in all sieve analysis data or reports intended for international publication.

†These sieves are not in the fourth-root-of-2 series, but they have been included because they are in common usage.

ited to the scalping or rough screening of dry material at 0.05 m (2 in) and coarser and are not satisfactory for moist and sticky material. The slope, or angle with the horizontal, will vary between 20 and 50°. Stationary grizzlies require no power and little maintenance. It is, of course, difficult to change the opening between the bars, and the separation may not be sufficiently complete.

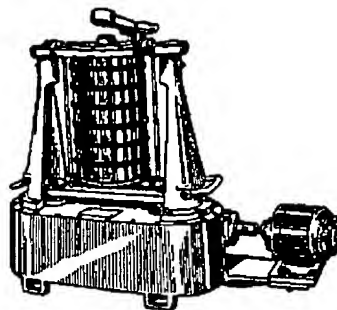


FIG. 19-15 Ro-Tap testing sieve shaker. (W. S. Tyler, Inc.)

**Flat grizzlies.** These, in which the parallel bars are in a horizontal plane, are used on tops of ore and coal bins and under unloading trestles. This type of grizzly is used to retain occasional pieces too large for the following plant equipment. These lumps must then be broken up or removed manually.

**Vibrating grizzlies.** These are simply bar grizzlies mounted on eccentrics so that the entire assembly is given a back-and-forth movement or a positive circle throw. These are made by companies such as Allis-Chalmers, Hewitt Robins, Nordberg, Lick-Belt, Simplicity, and Tyler.

**Revolving Screens** Revolving screens, or trommel screens, once widely used, are being largely replaced by vibrating screens. They consist of a cylindrical frame surrounded by wire cloth or perforated plate, open at both ends, and inclined at a slight angle. The material to be screened is delivered at the upper end, and the oversize is discharged at the lower end. The desired product falls through the wire-cloth openings. The screens revolve at relatively low speeds of 15 to 20 r/min. Their capacity is not great, and efficiency is relatively low.

**Mechanical Shaking Screens** These screens consist of a rectangular frame which holds wire cloth or perforated plate and is slightly inclined and suspended by loose rods or cables or supported from a base frame by flexible flat springs. The frame is driven with a reciprocating motion. The material to be screened is fed at the upper end and is advanced by the forward stroke of the screen while the finer particles pass through the openings. In many screening operations such devices have given way to vibrating screens.

Shaking screens, such as the mechanical-conveyor type made by Syntron Co., may be used for both screening and conveying.

The advantages of this type are low headroom and low power requirement. The disadvantages are the high cost of maintenance of the screen and the supporting structure owing to vibration and low capacity compared with inclined high-speed vibrating screens.

**Vibrating Screens** These screens are used as standard practice when large capacity and high efficiency are desired. The capacity, especially in the finer sizes, is so much greater than that of any of the other screens that they have practically replaced all other types when efficiency of the screen is an important factor. Advantages include accuracy of sizing, increased capacity per unit area, low maintenance cost per ton of material handled, and a saving in installation space and weight.

There are a great number of vibrating screens on the market, but basically they can be divided into two main classes: (1) mechanically vibrated screens and (2) electrically vibrated screens.

**Mechanically Vibrated Screens** The most versatile vibration for medium to coarse sizing is generally conceded to be the vertical circle produced by an eccentric or unbalanced shaft, but other types of vibration may be more suitable for certain screening operations, particularly in the finer sizes. One well-known *four-bearing mechanically vibrated screen*, installed in an inclined position, is the Ty-Rock (Fig. 19-16). This is a balanced circle-throw machine mounted on a base frame, having a full-floating body mounted on shear rubber mounting units which absorb the shocks of heavy material and allow the shaft to revolve around its own natural center of rotation.